



Özge Drama

Robotics Control Engineer



21 April 1990



Munich, Germany



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Motivation

I am interesting in modeling, control, optimization and simulation in the context of robotics and automation. I also strive to bring modern software practices to my projects to enable the team to work together more effectively.

Languages

- Turkish: Native
- English: Fluent
TOEFL IBT: 113
- German: Level B2-C1
Goethe Cert. B2
- Japanese: Level A2-B1

Programming

- C++, Python
- ROS2
- CI/CD, docker, git, (c)make
- MATLAB, Simulink, LabVIEW
- Robotics simulators (e.g. pybullet)
- SolidWorks, SolidCAM, AutoCAD
- Comsol Multiphysics
- Xilinx ISE, dSPACE
- SIMATIC Manager (PLC)

Work Experience

- 2021-... **Robotics Control Engineer** Munich, Germany
Franka Emika GmbH
- **Motor control:** Comparison of methods for tuning PI gains of field oriented control of PMSM drives
 - **Joint control:** Methods for tuning joint full-state feedback controller
 - **7-DOF robot arm control:** Assessment of gravity compensation during guiding in relation to model accuracy and crosstalk torques
 - **Robot modelling and identification:** Development of a Python-based framework for symbolic modelling of robots and identification of robot dynamics with physically feasible parameters
 - **Robot dimensioning:** Estimation of joint torques for new robot design
- 2015-2017 **Research and Development Engineer** Sachseln, Switzerland
Maxon Motor AG
- Modeling, simulation, and improvement of DC brush motors
 - Research on DC motor loss reduction
 - Software and testbed development for measuring motor properties
 - Scanning electron microscopy analysis of motor parts
 - Motor selection for customer projects

Education

- 2017-2021 **Ph.D. in Mechanical Engineering** Stuttgart, Germany
University of Stuttgart
Max Planck Institute for Intelligent Systems, Dynamic Locomotion Group
Thesis: Control Mechanisms for Postural Stability and Trunk Motion in Bipedal Running: A Study for Humans, Avians, and Bipedal Robots
- 2012-2015 **M.Sc. in Robotics, Systems and Control** Zurich, Switzerland
ETH Zurich
Thesis: Trajectory Optimization for Fall Recovery of a Quadruped Robot
- 2008-2012 **B.Sc. in Mechatronics Engineering** İstanbul Turkey
Sabancı University with 100% Merit Scholarship
Ranking: 4th/51
Thesis: ZMP-based Trajectory Generation for a Quadruped Robot

Practical Experience

Internships

- 2013 **Robert Bosch GmbH** Schwieberdingen, Germany
Sep–Feb
- Implementation of a field oriented control mechanism for a permanent magnet synchronous machine in real-time
 - Electromagnetic interference reduction using spread spectrum technique
- 2011 **DMS (Digitale Mess- und Steuersysteme) AG** Stuttgart, Germany
Jun–Sep
- Design of an air ventilation and heating/cooling system for industrial building automation
- 2010 **Figes A.Ş.** Bursa, Turkey
Aug–Sep
- Physical modeling of multidomain systems and control design acceleration using Simulink and Simscape
- 2010 **Bosch San. ve Tic. A.Ş.** Bursa, Turkey
Jun–Aug
- Design of an obliqueness measurer for valve body of HDEV series fuel injector using Autodesk Inventor

Hobbies

- Dancing: ballet, Lindy Hop
- Music: piano, singing
- Hiking

Summer schools

2020	MEMMO: Memory of motion summer school	Virtual
2017	PhD summer school on learning systems	ETH Zurich, Switzerland
2015	Robotics summer school	Tohoku University, Sendai, Japan

Seminars

2018-2021	IMPRS-IS soft skill seminars	Stuttgart, Germany
	<ul style="list-style-type: none">• Intercultural communication• Poster design and presentation• Voice & language: How to communicate more easily and effectively• Media training: Science communication• Leadership training	
2016	Embedded control and monitoring using LabVIEW	Switzerland
	National Instruments	
2015	Foundations and applications of small electrical motors	Germany
	WDI Wissensforum, Technical University of Ilmenau	
2011-2012	Proficiency in mechatronics education	Istanbul, Turkey
	FESTO and Boğaziçi University	
2009	IMES AutoCAD education	Bursa, Turkey

Publications

Journal Papers

2020	Virtual point control for step-down perturbations and downhill slopes in bipedal running
	Drama, Ö. and Badri-Spröwitz, A. Frontiers in Bioengineering and Biotechnology
2020	Postural stability in human running with step-down perturbations: an experimental and numerical study
	Drama, Ö., Vielemeyer J., Badri-Spröwitz, A., and Müller R. Royal Society Open Science
2020	Trunk pitch oscillations for energy trade-offs in bipedal running birds and robots
	Drama, Ö. and Badri-Spröwitz, A. Bioinspiration & Biomimetics

Conference Papers

2019	Trunk pitch oscillations for joint load redistribution in humans and humanoid robots
	Drama, Ö. and Badri-Spröwitz, A. IEEE-RAS International Conference on Humanoid Robots
2011	ZMP reference trajectory generation with preview control for a quadruped robot
	Fidan K., Akbaş T., Eskimez E., Özel S., Adak K., Drama Ö., Konukoğlu M., Yılmaz G., and Erbatur K. Turkey Automation Conference

Presentations and Abstracts

2017	Linking mechanics and learning
	Heim S., Grimminger F., Drama Ö., and Badri-Spröwitz A. Dynamic Walking Conference